

In a powerful presentation, Brenda Buck, PhD. broke down the reality of the “chemical soup” that surrounds us, explaining how modern industries have flooded our world with more than 350,000 synthetic chemicals. These range from entirely synthetic compounds like PFAS to natural materials used on a massive scale, like asbestos and mercury. We know little about the long-term safety of most of these substances.

Dr. Buck mapped out how these toxins move through a continuous, damaging cycle from source to accumulation to physical effects. As plastic trash, clothing, and car tires wear down, they break into microscopic pieces called microplastics and nanoplastics. Chemicals like PFAS, used in waterproof gear and food wrappers, wash into various ecosystems. Because these plastics and chemicals don't break down easily, they travel through Earth's natural water cycle. Water-soluble PFAS evaporates into the atmosphere and precipitates, contaminating soil and drinking water even in the most remote areas.

This environmental pollution leads directly to accumulation. Plants absorb these tiny particles and chemicals from the soil, animals eat the plants, and ultimately, the toxins end up in the food we eat, the water we drink, and the air we breathe. Once inside us, these microscopic plastic shards and chemicals pass through our regular digestive boundaries, enter our bloodstream, and build up over time in our liver, lungs, placenta, and brains. Recent studies have even revealed a ten-fold increase in plastic accumulation in the brains of individuals suffering from dementia. This bioaccumulation in our body systems is directly linked to rising global rates of immune system issues, infertility, diabetes, heart disease, and various cancers.

To explain why our society allows this chemical soup to exist, Dr. Buck pointed to broken political, legal, and economic frameworks. In the United States, regulations follow a risk management model in which chemicals are allowed on the market until the government can definitively prove they cause harm. Major corporations use their wealth to lobby lawmakers and stall regulations by creating scientific doubt.

Over time, this intense corporate influence leads to regulatory capture and a possible structural breakdown. When government protection systems fail, regular families are left to bear the devastating personal and financial burdens of chronic illness, eventually leaving the slow, expensive legal system as the public's absolute last resort for justice.